



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,544	12/05/2003	Nicholas R. Watts	P17173	1914
7590 06/16/2006 Buckley, Maschoff & Talwalkar LLC Five Elm Street New Canaan, CT 06840			EXAMINER ANDUJAR, LEONARDO	
			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/729,544

Applicant(s)

WATTS ET AL.

Examiner

Leonardo Andújar

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 15,17-19,21,22,34,36,37 and 39-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15,17-19,21,22,34,36,37 and 39-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Acknowledgment***

1. The amendment 03/23/2006 filed on in response to the Office action mailed on 02/10/2006 has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 15, 17-19, 21, 22, 34, 36, 37 and 39-43.

### ***Election/Restrictions***

2. Applicant's election without traverse of group I in the reply filed on 04/29/2005 is acknowledged.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

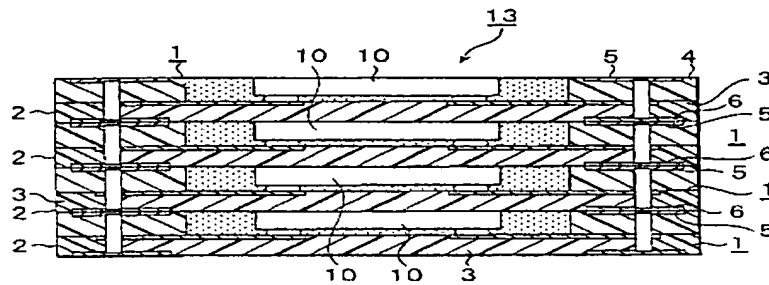
4. Initially, and with respect to claims 15, 19 and 37, it is note that a "product by process" claim is directed to the product per se, no matter how actually made. See In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) and the related case law cited therein which makes it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here,

Art Unit: 2826

an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. As stated in Thorpe, even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. In re Brown, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972); In re Pilkington, 411 F.2d 1345, 1348, 162 USPQ 145, 147 (CCPA 1969); Buono v. Yankee Maid Dress Corp., 77 F.2d 274, 279, 26 USPQ 57, 61 (2d. Cir. 1935). Note that Applicant has burden of proof in such cases as the above case law makes clear.

5. Claims 15, 17, 18, 34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murayama et al. (US 6,548,330) in view of Sota (US 6,201,707).

6. Regarding claims 15 and 34, Murayama (e.g. fig. 6) shows an article of manufacture, comprising: at least two integrated circuit (IC) packages in stacked relation to each other, each of the IC packages including: a substrate 10 mounted on a surface of the substrate 2; a ground plane 6 formed on an opposite surface of the substrate from the first surface on which the IC is mounted; and a coverlay laminated on the surface of the substrate and having an opening; and at least one conductive connection 8 formed through one of the coverlays and connecting one of the ICs to another of the ICs wherein each IC is positioned in an opening of a respective one of the coverlays.



In regards to the method used to form the opening in the first/second coverlay such as photolithography, it is considered to be an intermediate process step that does not affect the structure of the final device. Although Murayama does not specify which materials can be used for making the substrate and the coverlay, it is well known in the art the use of flexible and thermally stable organic polymers to make IC substrates. In the instant case, Sato discloses that wiring substrates can be made from a variety of materials such as polyimide, polyamide, BT resin, epoxy and polyester. From the viewpoint of costs and ease of machining, it is preferable to use polyimide (col. 5/lls. 24-33). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the substrate of Murayama (e.g. layers 2/4) of a flexible and thermally stable organic polymer such as polyimide because it is a preferable material from the viewpoint of costs and ease of machining as taught by Sato.

7. Regarding claims 17, 18 and 36 Murayama in view of Sato shows that the substrate/coverlay are made of a flexible material such polyimide.

8. Claims 19, 21, 22, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murayama et al. (US 6,548,330) in view of in view of Sota (US 6,201,707) further in of Blumenau et al. (US 6,421,711).

9. Regarding claims 19 and 37, Murayama (e.g. fig. 6) shows an apparatus comprising: a stacked integrated circuit (IC) package which includes: a first substrate 1; a first IC 10 mounted on a surface of the first substrate; a first coverlay 4 laminated on the surface of the first substrate and having at least one opening; a second substrate 1 positioned in stacked fashion on the first coverlay; a second IC 10 mounted on a surface of the second substrate; a second coverlay 4 laminated on the surface of the second substrate and having at least one opening; and at least one conductive connection 7/8 connecting the first IC to the second IC and passing through at least one opening in the first coverlay; wherein: the first IC is positioned in an opening in the first coverlay, all of the first IC being in said opening in the first coverlay; and the second IC is positioned in an opening in the second coverlay, all of the second IC being in said opening in the second coverlay. Also, Murayama shows that the first and second substrate include first/second ground planes 6 formed on opposite surfaces of respectively first surfaces on which the ICs are mounted. In regards to claim limitation referring to the process used to make the opening in the first/second coverlay such as photolithography, it is considered to be an intermediate process step that does not affect the structure of the final device. Although Murayama does not specify which materials can be used for making the substrate and the coverlay, it is well known in the art the use of flexible and thermally stable organic polymers to make IC substrates. In the instant case, Sato discloses that wiring substrates can be made from a variety of materials such as polyimide, polyamide, BT resin, epoxy and polyester. From the viewpoint of costs and ease of machining, it is preferable to use polyimide (col. 5/lls. 24-

and second solder mask respectively as taught by Rokugawa to protect the exposed area of the grounds planes from corrosion.

13. Claims 41 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murayama et al. (US 6,548,330) in view of Sota (US 6,201,707) further in view of Blumenau et al. (US 6,421,711) further in view of Rokugawa et al. (US 6,441,314).

14. Regarding claims 41 and 43, Murayama in view of Sota further in view of Blumenau does not teach that the a first and second solder mask layers covering the first and second ground planes 6. Nevertheless, Rokugawa teaches a substrate that includes a solder mask 26 covering the ground planes 24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the first and second ground plane with a first and second solder mask respectively as taught by Rokugawa to protect the exposed area of the grounds planes from corrosion

### ***Response to Arguments***

15. Applicant's arguments filed 03/10/2006 have been fully considered but they are not persuasive. Applicant argues that the prior art does not include a ground plane. Nevertheless, Murayama teaches a ground plane 6. Although the applicant uses terms different to those of Murayama to label the claimed invention, this does not result in any structural difference between the claimed invention and the prior art. The use of different terminology to describe the plurality of elements that constitute an integrated circuit as this is just a writing style and the way in which a structural limitation is expressed does not affect the configuration of the described elements. Moreover, this

33). Also, Murayama does not teach a communication device couple to the first IC. Blumenau discloses a communication device such wireless data transceiver is couple to a chip to permit remote interrogation (col. 37/lls. 4-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to make the substrate of Murayama (e.g. layers 2/4) of a flexible and thermally stable organic polymer such as polyimide because it is a preferable material from the viewpoint of costs and ease of machining as taught by Sato and to connect a communication device such wireless data transceiver to the first and/or second IC disclosed by Murayama in view of Sato to permit remote interrogation of the chip as taught by Blumenau. Note that the first and second substrates are equivalent.

10. Regarding claims 21, 22 and 39 Murayama in view of Sato further in view of Blumenau shows that the substrates/coverlays are made of a flexible material such polyimide.

11. Claims 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murayama et al. (US 6,548,330) in view of in view of Sota (US 6,201,707) further in view of Rokugawa et al. (US 6,441,314).

12. Regarding claims 40 and 42, Murayama in view of Sota does not teach that the a first and second solder mask layers covering the first and second ground planes 6. Nevertheless, Rokugawa teaches a substrate that includes a solder mask 26 covering the ground planes 24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to cover the first and second ground plane with a first



type of description is considered functional language that does not result in a structural difference between the claimed invention and the prior art. Note that the specific functionality of the metal layer (ground, power supply, signal) does not further limit the structure.

### ***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

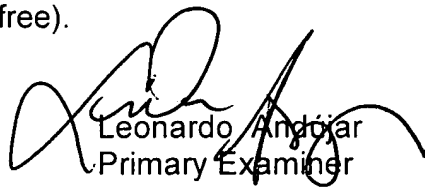
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST.

Art Unit: 2826

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

19. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Leonardo Andojar  
Primary Examiner  
Art Unit 2826